

A Flow Chart for Array-based Detection of Gene Expression

Hybridization Oligo: 3' 5'

U: Upstream universal priming site
 Zip: Unique sequence as a molecular "zip-code"
 EX: Gene-specific exon sequence
 D: Downstream universal priming site

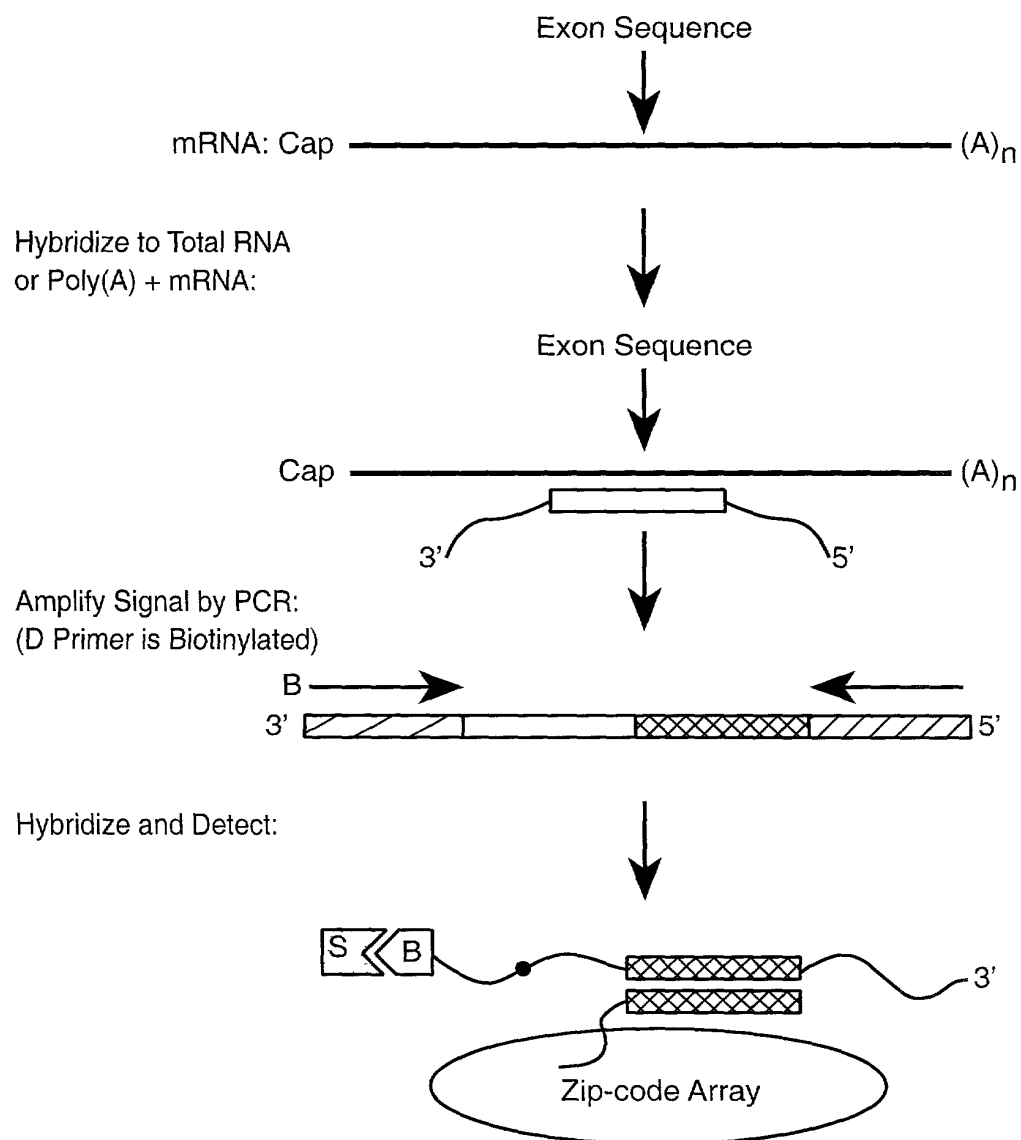



FIG. 1

A Flow Chart for Array-based Detection of RNA Alternative Splicing

Hybridization Oligo: 3'  5'

U: Upstream universal priming site
 Zip: Unique sequence as a molecular "zip-code"
 SJ: Gene-specific splice junction
 D: Downstream universal priming site

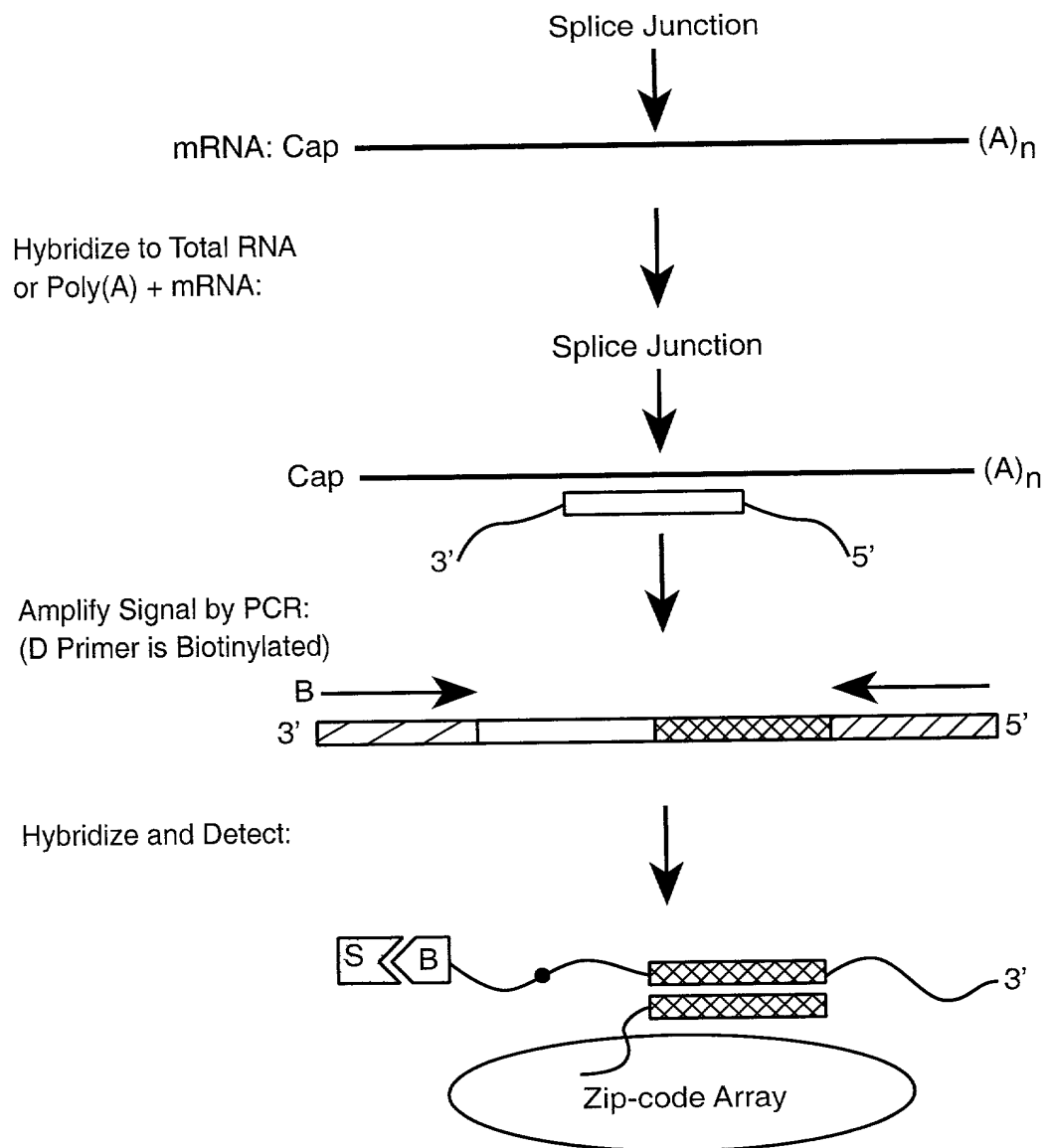


FIG. 2

Genome-wide Gene Expression Profiling Using Oligo-ligation Strategy

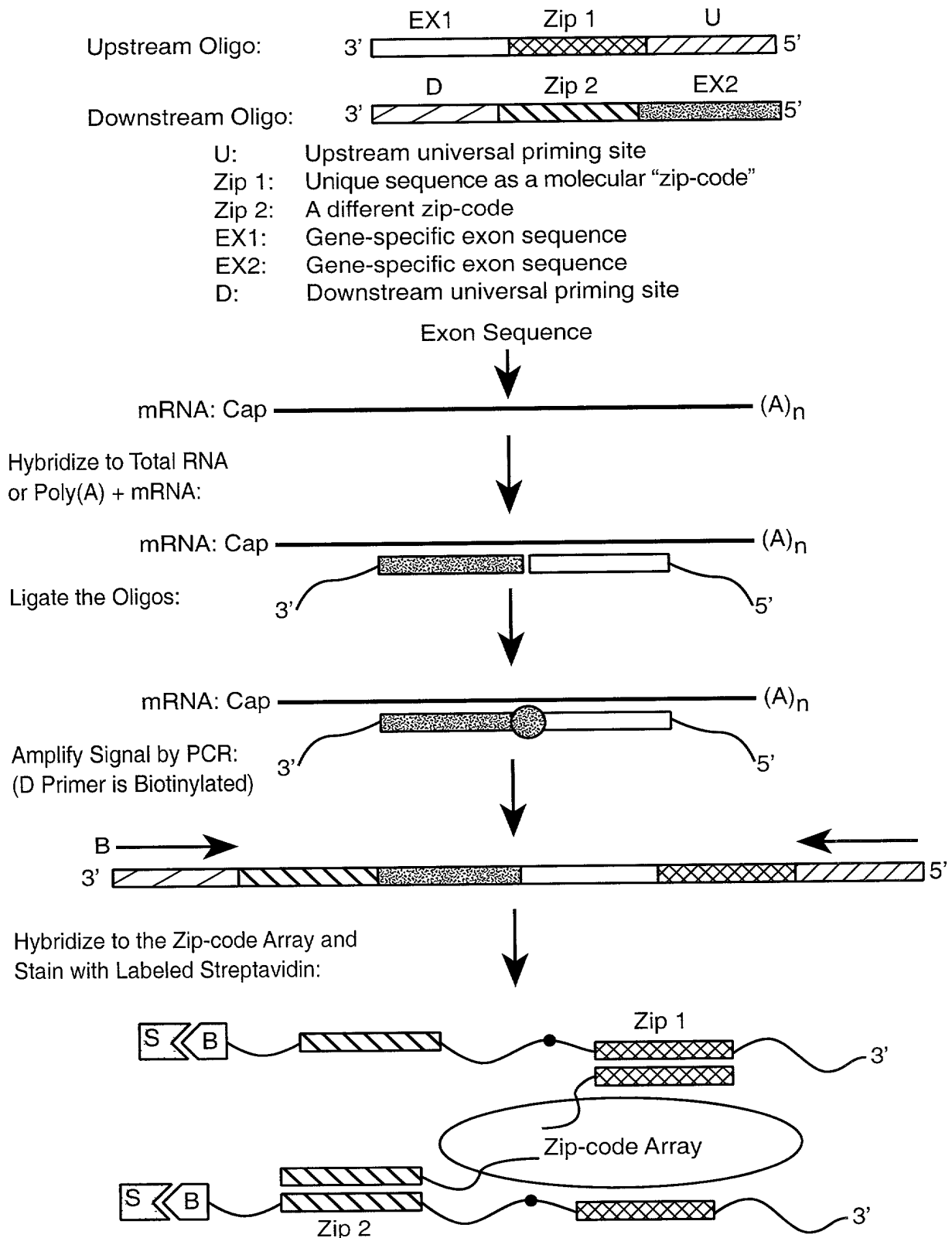


FIG._3

Genome-wide RNA Alternative Splicing Monitoring Using Oligo-Ligation Strategy

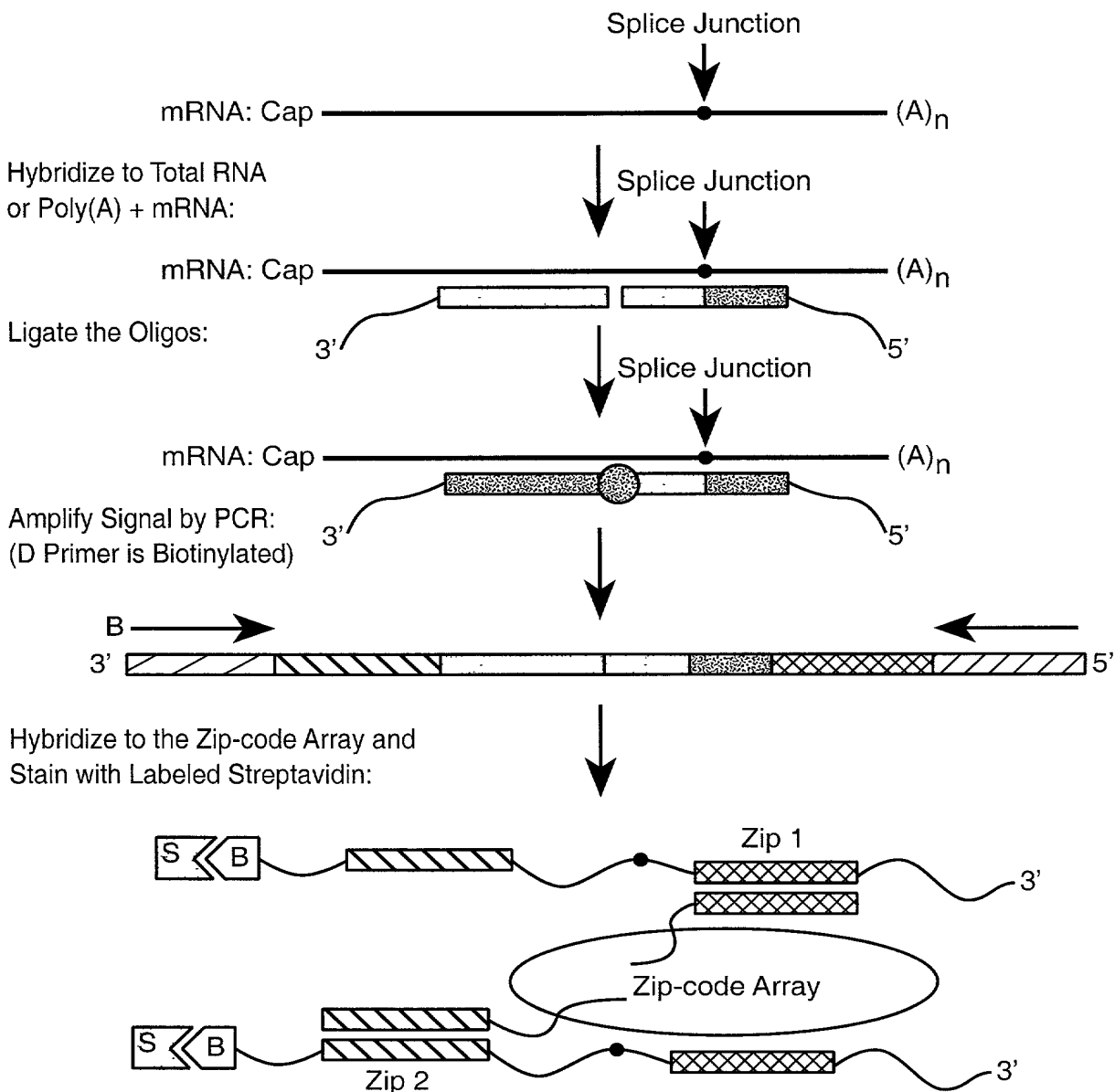
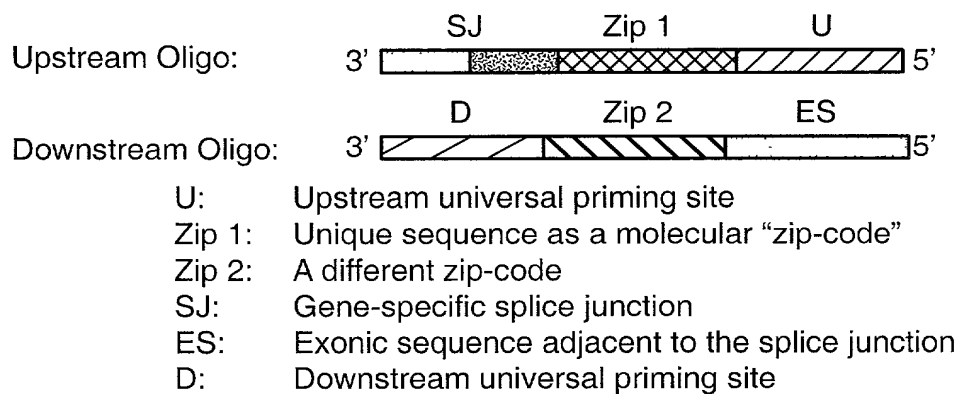
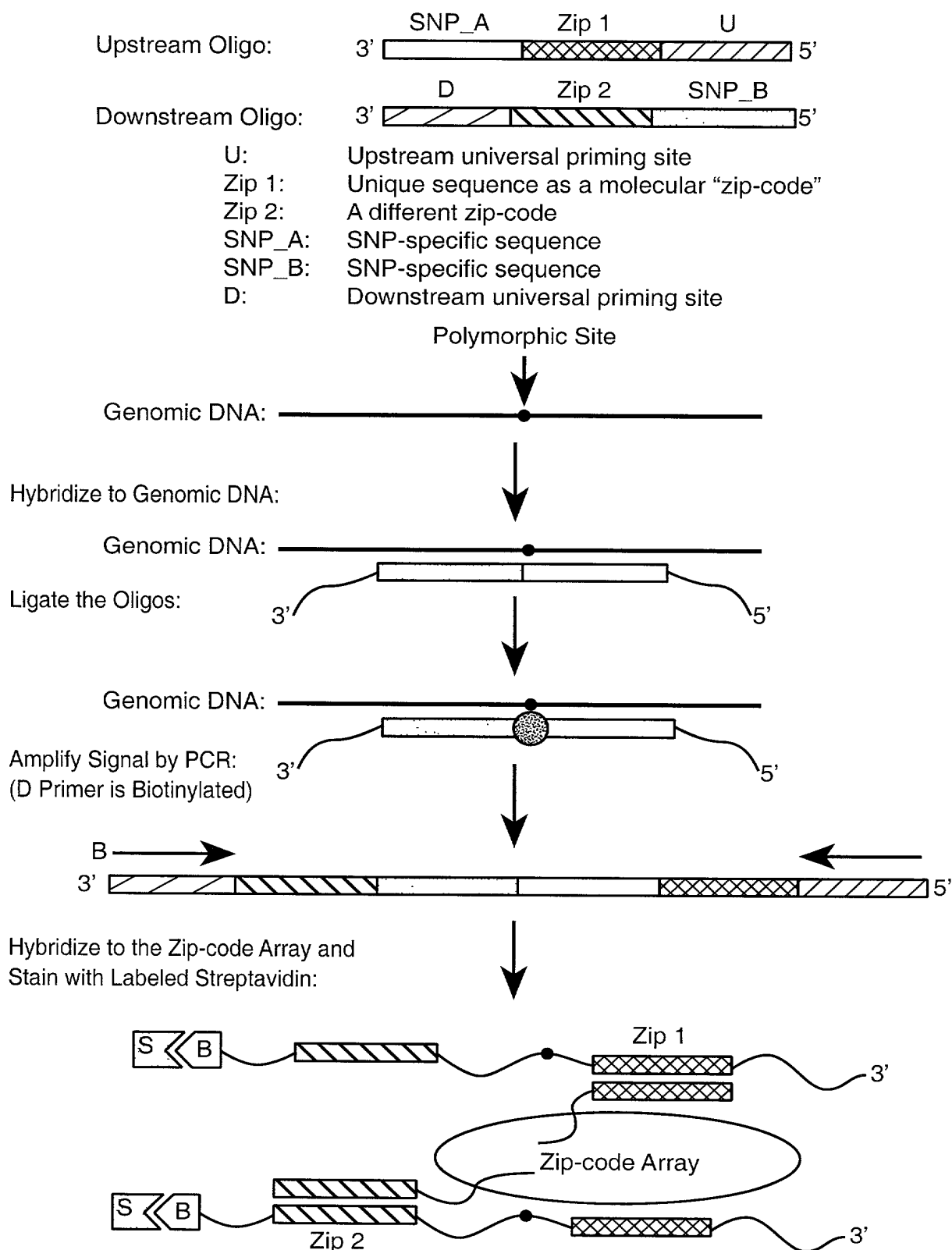



FIG._4

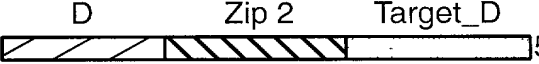
Direct Genotyping Using a Whole-genome Oligo-ligation Strategy



6 / 11

Whole-genome Oligo-ligation Strategy

Upstream Oligo: 3'  5'

Downstream Oligo: 3'  5'

Middle Oligo: 3'  5'

U: Upstream universal priming site
 Zip 1: Unique sequence as a molecular "zip-code"
 Zip 2: A different zip-code
 Target_U: Upstream target-specific sequence
 Target_D: Downstream target-specific sequence
 Target_M: Middle target-specific sequence
 D: Downstream universal priming site

Target: 

Hybridize to Target:

Target: 

Ligate the Oligos:

Target: 

Amplify Signal by PCR:
 (D Primer is Biotinylated)

 3' 5'

Hybridize to the Zip-code Array and
 Stain with Labeled Streptavidin:

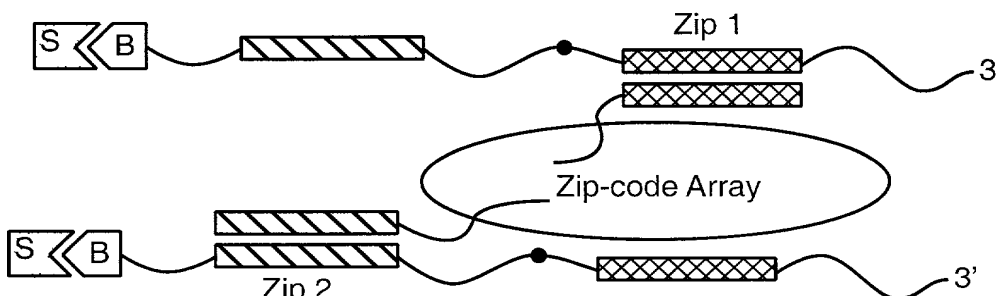
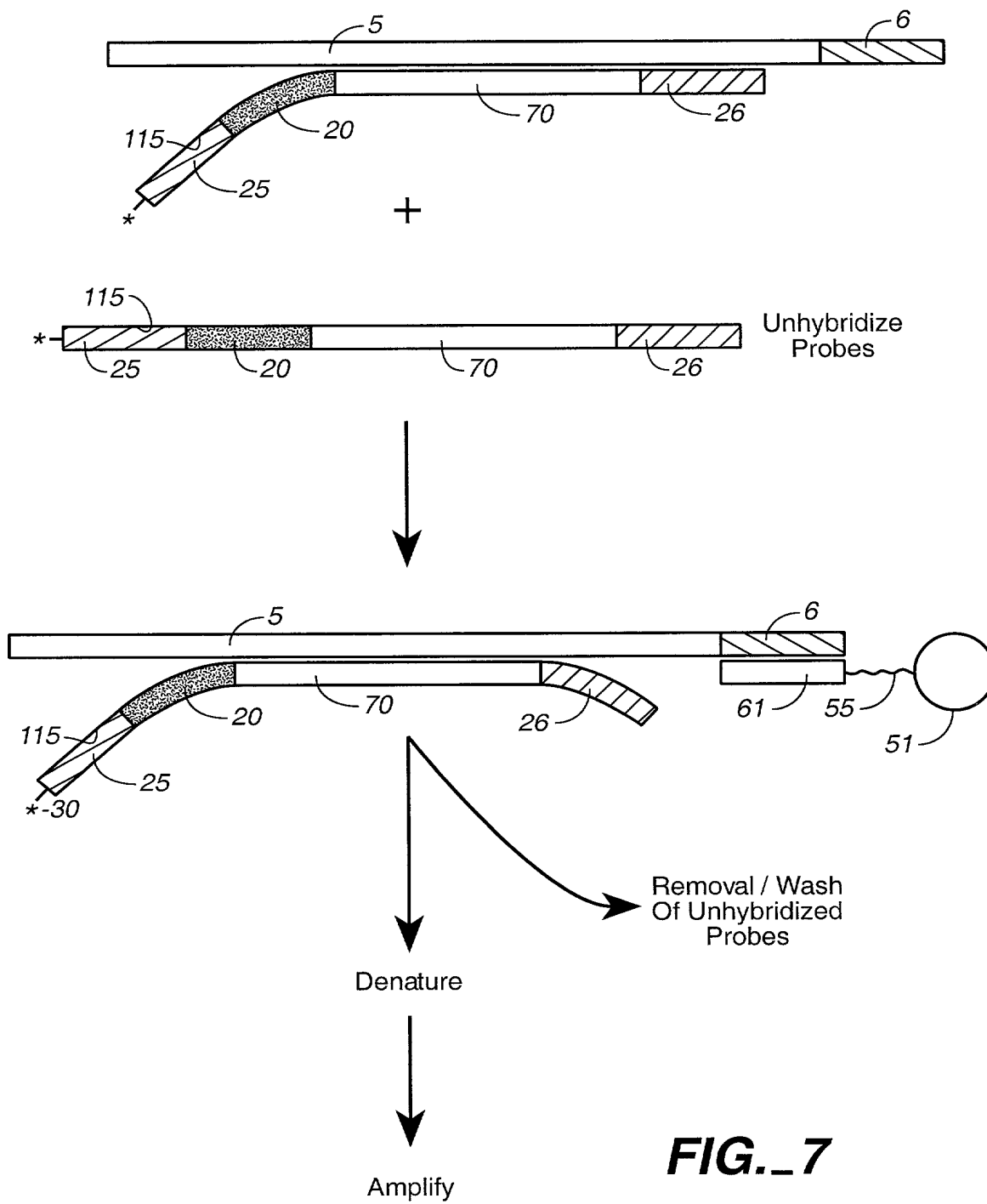
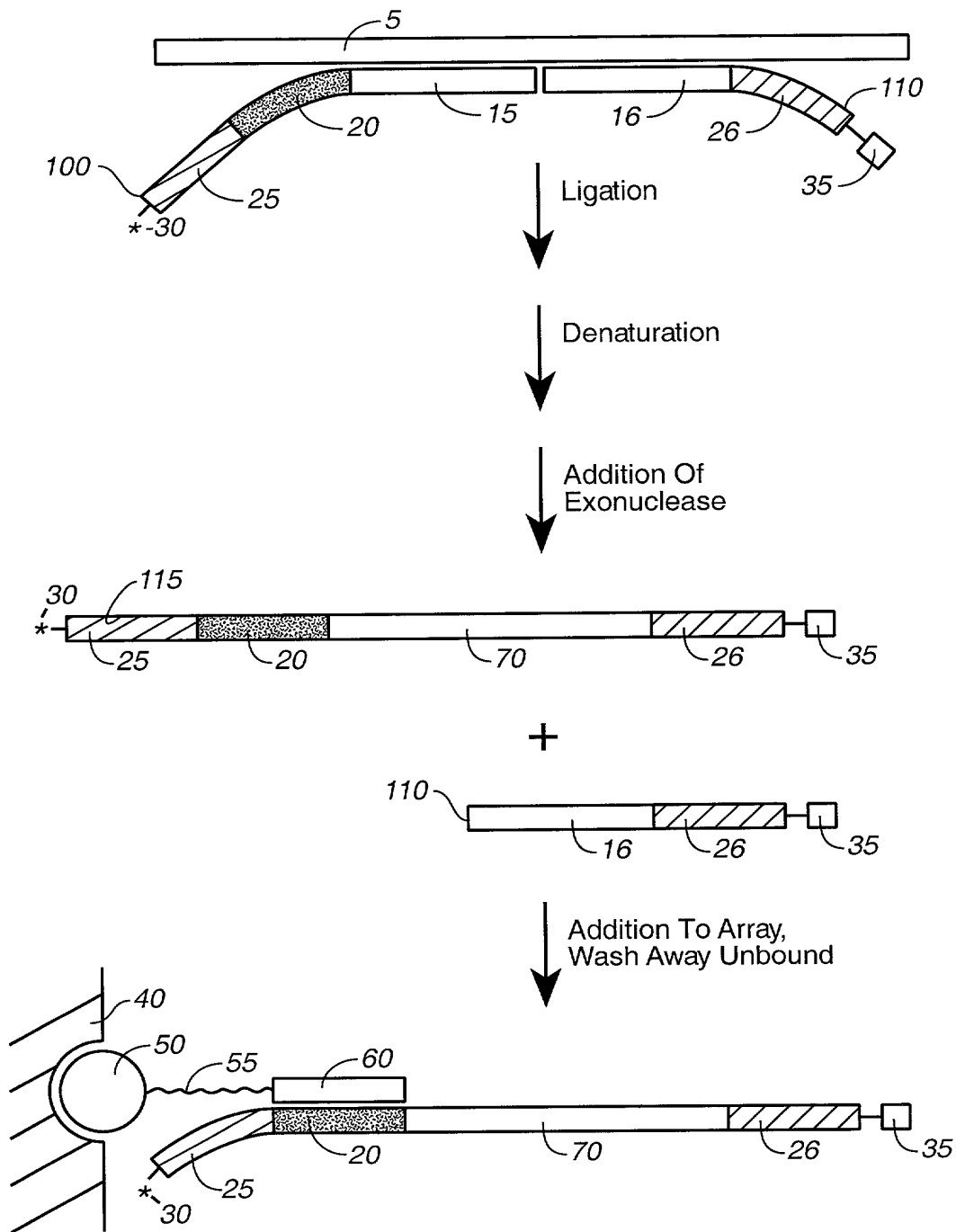


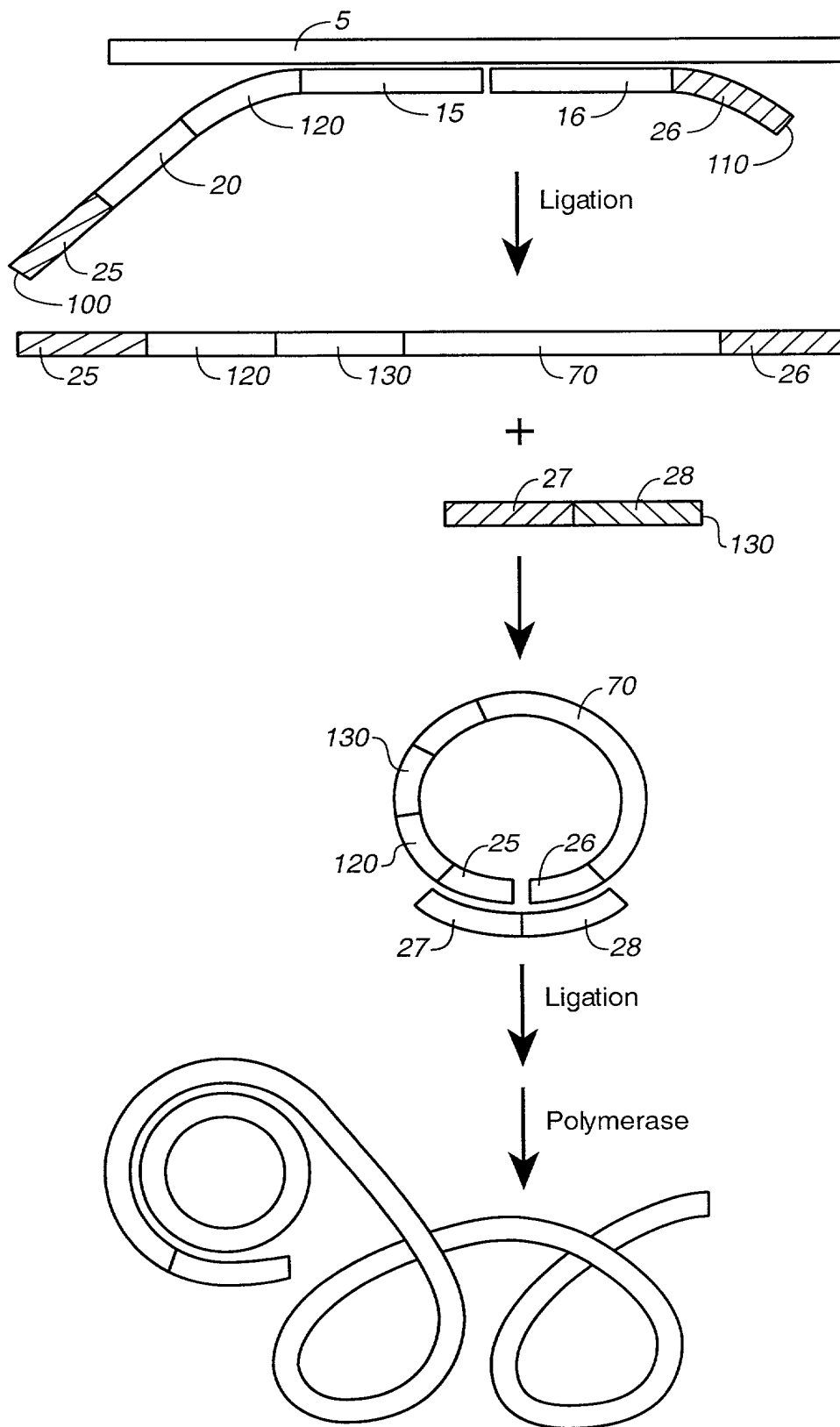
FIG._6

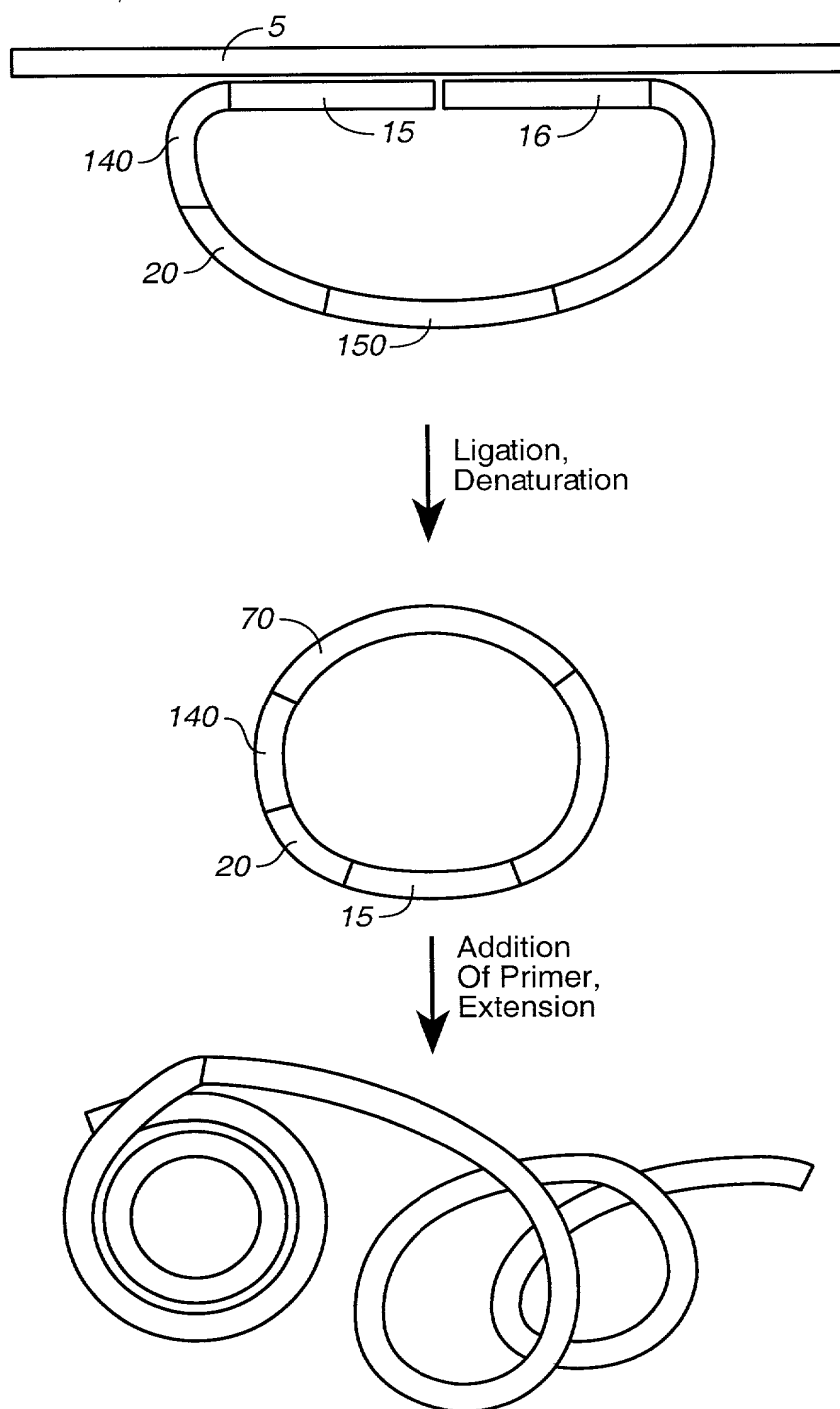
7 / 11



**FIG. 8**

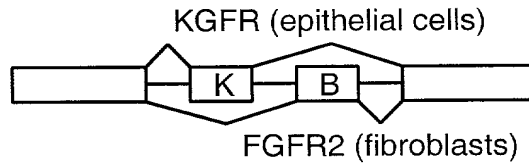
9 / 11

**FIG. 9**

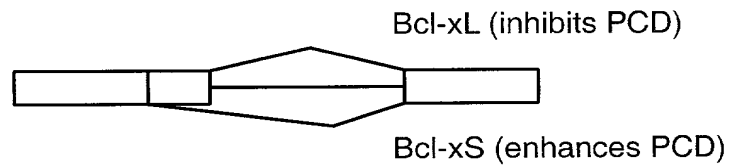
**FIG._10**

Alternative Splicing Targets Selected for Microarray Analysis

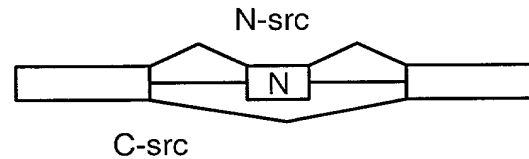
1. GAPDH (constitutive splicing control, signal normalization).
2. FGFR2 / KGF (mutually exclusive exons, internal cell type control):



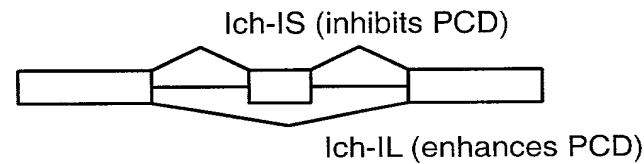
3. Bcl-x (alternative 5' ss):



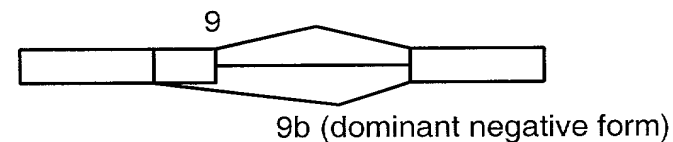
4. c-src (exon inclusion / exclusion):



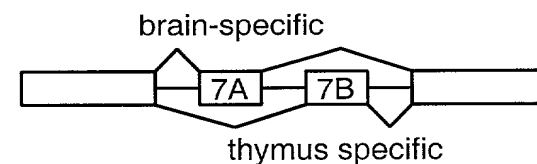
5. CASP2 (exon inclusion / exclusion):



6. CASP9 (alternative 5' ss):



7. Fyn (src family tyrosine kinase, mutually exclusive exons);



8. NOS1 (alternative promoters / alternative 5' ss):

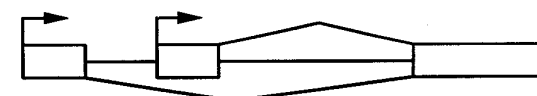


FIG._11